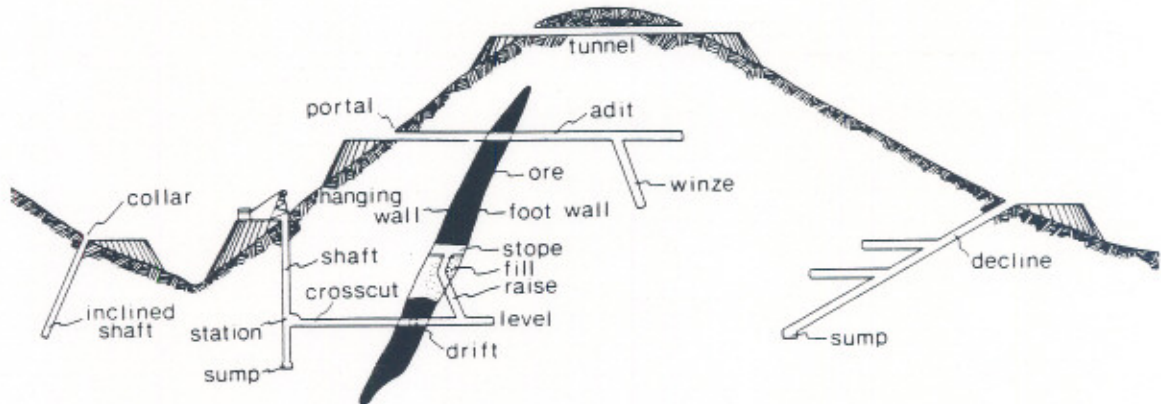


APPENDIX B

GLOSSARY OF MINING TERMS

REFERENCE: Thrush, P.W., A Dictionary of Mining, Mineral, and Related Terms, U.S. Bureau of Mines, 1968, 1269 p.

(Composite cross-section illustrating mining terms)



ABANDONED - mineral lands are considered abandoned when no responsible party can be identified; therefore, the responsible party for correcting resource and safety problems falls to NPS.

ABANDONED MINERAL LANDS - includes the remains of any activity relating to the exploration or development for any mineral resource including hardrock minerals, mineral materials, industrial minerals, coal, oil shale, oil and gas, geothermal energy or topsoil. Abandoned mineral lands include mining or other extraction sites, mill and smelter sites, access roads, processing facilities, and associated disturbed land..

ALLUVIAL - pertaining to alluvium, may be loose gravel or soil.

ADIT - a horizontal or nearly horizontal passage driven from the surface for the working or dewatering of a mine. If driven through the hill or mountain to the surface on the opposite side, it would be a tunnel.

APEX - the top terminal edge of a vein on the surface or its nearest point to the surface (blind apex). The apex is the point from which inclination is measured to determine extralateral rights of the deposit.

ASSAY - 1) (verb) to determine the amount of metal contained in an ore; 2) (noun) the result of making such a determination.
Note: difference between assay and analysis: in an analysis all of the chemical constituents are determined; in an assay only certain constituents are determined, usually those of commercial interest.

ASSESSMENT - annual work that must be done on an unpatented mining claim on US public domain lands.

BENEFICIATE - processing of ore to reduce size, remove unwanted constituents, and increase purity of commercial constituents.

BENCHES - ledges of all kinds of rock or gravel shaped like steps.

BLANKET DEPOSIT - flat ore deposit much larger and wider than thick.

BLOCK CAVING - see CAVING.

BORE HOLE - an exploratory or prospecting hole made by drilling.

CAPPING - a rock formation overlying a body of rock or ore such as the rhyolitic volcanos which form mesas and plateaus in the southwestern U.S.

CAVING - a mining method in which the ore is broken by induced caving.

Variations: **top slicing.** A horizontal slice of ore is removed allowing the ore above it to cave. Then, leaving the slice below temporarily intact, a still lower slice is removed, allowing the intervening slice to cave.

block caving. Similar to top slicing except that the slice which is allowed to cave is of much greater thickness, and may even constitute the full thickness of the ore body.

pillar caving. Ore is broken in a series of stopes or tall rooms, leaving pillars between. Eventually the pillars are forced or allowed to cave under the weight of the roof.

CHUTE - channel or shaft down which ore is shoveled or allowed to fall.

CLAIM - 600 x 1,500 feet for a lode claim; 600 x 1,320 feet for a placer claim.

COLLAR - the term applied to the timbering or concrete around the mouth or top of a shaft.

CONCENTRATE - (verb) to separate metal or ore from the associated gangue or barren rock.

CONCENTRATOR - mill or plant in which ore is concentrated by removing unwanted constituents.

CROSSCUT - a horizontal opening driven across the course of a vein or in general, across the direction of the main workings. A connection from a shaft to a vein.

COUNTRY ROCK - a general term applied to the rock surrounding and penetrated by mineral veins; in a wider sense applied to the rocks invaded by and surrounding an igneous intrusion.

DEVELOP - expose ore bodies for mining, as by sinking shafts and driving drifts.

DRIFT - horizontal opening in or near an ore body and parallel to the course of the vein or long dimension of the ore body. An underground passage following a vein.

DUMP - material deposited from a mine--usually waste material.

EPITHERMAL ORE DEPOSIT - deposit formed by hot ascending solutions at shallow depth and low temperature.

EXPOSURE - any part of a rock formation easily seen either in a mine or a surface outcrop.

FACE - in any adit, tunnel, or stope, the end at which work is in progress or was last done (i.e., "the working face").

FISSURE - an extensive crack, break, or fracture in rock. A mere joint or crack of a few inches or feet in length is not termed a fissure although in a strict sense it is one.

FLOAT - loose fragments of vein material found downhill from an outcrop.

FLOOR - that part of any underground opening upon which you walk or upon which a haulage way is laid.

FLOTATION - a method of concentrating ore by inducing particles of particular minerals to float to the surface of water or other solution (usually buoyed up by air bubbles) while the other particles sink to the bottom.

FLUX - a substance charged into a furnace for the purpose of combining with unwanted substances in the ore in order to form slag.

FOOTWALL - the wall or rock under a vein. It is called the floor in bedded deposits.

GANGUE - undesirable minerals occurring in ore.

GOPHERING - haphazard mining of the easiest and richest parts of an ore body.

GOSSAN - a weathered (oxidized) superficial cover of sulfide deposits often easily located due to the highly-colored iron oxides (and jasper), sometimes with manganese dioxide, and clay minerals.

HANGING WALL - the wall or rock on the upper side of an inclined vein. In bedded deposits (sedimentary) it is called the roof or top.

HEADFRAME - structure erected over shafts for hoisting purposes.

HYDROTHERMAL - pertaining to or resulting from the activity of hot aqueous solutions originating from a magma or other source deep in the earth.

LEVEL - underground mines are usually worked from a network of horizontal openings or drifts called levels. These are commonly spaced at regular intervals in depth and are either numbered from the surface in regular order or designated by their actual elevation below the top of a shaft.

LOCATION - staking out or making a mining claim.

LODE - 1) a fissure in the country rock filled with minerals; 2) tabular deposit of valuable minerals between definite boundaries.

MOTHERLODE - the principal lode or vein passing through a district or particular area.

MUCK - 1) (noun) rock broken in the process of mining; 2) (verb) to remove rock.

NATIVE - occurring in nature as a pure metal (e.g., native silver).

ORE - an aggregate of minerals which will yield a profit when mined and, if required, processed.

ORE PASS - an opening in a mine through which ore is delivered from a higher to a lower level.

ORESHOOT - concentration of primary ore along certain parts of an ore deposit.

OUTCROP - that part of a stratum or vein which appears on the earth's surface.

OVERBURDEN - material of any nature, consolidated or unconsolidated, that overlies a deposit of useful minerals, ores, or coal, especially those deposits that are mined from the surface by open cuts.

PARAGENESIS - the order of deposition or crystallization of the minerals present.

PILLAR - a piece of ground or mass of ore left to support the roof or hanging wall in a mine.

PITCH - inclination of an ore body or mine opening.

PLACER - deposit of alluvial gravel containing valuable minerals.

PORTAL - any nearly horizontal entrance to a mine.

PRIMARY ORE - ore not enriched or oxidized by supergene processes, i.e., the chemical effects produced by descending groundwater.

RAISE - a vertical or inclined opening driven upward from one mine level to connect with the level above, or to explore the ground above a level. See winze.

ROOM (mining) - a wide working place in a flat bed or vein.

ROOM AND PILLAR - a method of mining whereby the ore is mined in a series of rooms leaving ore pillars between the rooms to support the overlying rock.

ROUND - 1) rock broken or advance accomplished in a drift or other opening by simultaneously blasting a single set of drilled holes; 2) the set of holes drilled in preparation for a blast.

SCALING BAR - a bar used to knock down loose rock. Also called a pry bar.

SECONDARY ORE - ore enriched by supergene processes(descending groundwater).

SHAFT - a vertical or inclined opening, serving and providing access to various levels in a mine. Entry into and removal from a shaft of people, equipment, material and rock requires the use of mechanical hoisting equipment due to the steepness of the shaft.

SHOOT (oreshoot) - concentration of ore along certain parts of an ore deposit.

SINGLE JACK - a light single-handed hammer used in hand drilling.

SLIMES - ore reduced to a very fine powder and held in suspension in water so as to form a kind of thin mud.

SQUARE SET - a set of timbers consisting of vertical and horizontal posts all meeting at 90 degree angles.

SQUARE-SETTING (square-set stoping) - method of mining whereby the stope is supported with square-set timbering as the ore is removed.

STOPE - an underground opening from which ore has been or is being extracted. Does not include shafts, drifts, crosscuts, levels, etc. Usually applied to highly-inclined veins. An overhand stope is made by working upward from a mine level to the next level above. An underhand stope is made by working downward beneath a mine level.

STRINGER - a veinlet or small vein, usually one of a number which collectively make up a stringer lode or stockwork.

STULL - a timber prop set between walls of a stope.

SUMP - an excavation made to collect water which is then pumped to the surface.

SUPERGENE - generated from above. Refers to the effects (usually oxidation and secondary sulfide enrichment) produced by descending groundwater.

TAILINGS - refuse material resulting from the washing, concentration, beneficiation, or other treatment of crushed ore.
TIMBER - any of the wooden props, posts, bars, collars, lagging, etc., used to support mine workings.

TUNNEL - a horizontal or nearly horizontal underground passage open at both ends.

VUG - cavity within a body of rock or ore, sometimes lined with crystals.

WINZE a vertical or inclined opening sunk downward from inside a mine for the purpose of connection with a lower level, or for exploring the ground below a level. In some mines, the opening when connected through, is called a raise no matter which direction it was driven originally.